

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID B. NITSCHKE,
EUSTANCE HAROLD MUMFORD AND
DEAN M. NITSCHKE

Appeal No. 2001-0083
Application 08/975,267

ON BRIEF

Before OWENS, DELMENDO and MOORE, Administrative Patent Judges.

MOORE, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from a final rejection of claims 1, 5, 13, 15, and 16. Claims 2-4, 6-12 and 14 are objected to. Claims 17-21 have been cancelled.

CLAIMS

Claim 1 is representative of the claims on appeal, and reads as follows:

1. Apparatus for forming heated glass sheets comprising:
a housing having a heated chamber;

an upper mold support assembly for supporting an upper mold within the heated chamber for cyclical vertical movement between upper and lower positions;

a lower mold shuttle for supporting a lower mold for cyclical movement between an idle position horizontally spaced from the upper mold and a use position below the upper mold; and

a lower mold support assembly to which the lower mold is cyclically transferred from the lower mold shuttle in the use position to provide support thereof while permitting horizontal alignment of the lower mold with the upper mold as necessary upon each cycle of downward movement of the upper mold for cooperation of the molds to form a heated glass sheet between the molds.

THE REFERENCES

In rejecting the appealed claims under 35 U.S.C. §103, the Examiner relies on the following references:

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|------------------------------|-----------|---------------|
| McMaster et al. (McMaster I) | 4,470,838 | Sep. 11, 1984 |
| McMaster (McMaster II) | 5,092,916 | Mar. 3, 1992 |
| Kubo et al. (Kubo) | 5,445,508 | Aug. 29, 1995 |
| Austin | 5,643,615 | Jul. 1, 1997 |

THE REJECTIONS

Claims 1 and 5 are rejected under 35 U.S.C. §103(a) over McMaster II in view of Kubo.

Claims 13 and 16 are rejected under 35 U.S.C. §103(a) over McMaster II and Kubo as applied to claim 1 above, further in view of McMaster I.

Claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable over McMaster II in view of Kubo and McMaster I as applied to claim 13 above, and further in view of Austin.

DISCUSSION

The Invention

The Appellants' invention relates to an apparatus for forming a heated glass sheet within a heated chamber of a housing. A heated glass sheet is held by a vacuum to an upper mold which is in turn held by an upper mold support assembly which is capable of cyclical vertical movement between upper and lower positions. A lower mold shuttle which cyclically moves horizontally between an idle and a use position supports a lower mold during transit. A lower mold support assembly provides support to the lower mold during use while permitting horizontal alignment of the lower mold with the upper mold to form a heated glass sheet between the molds.

The Rejection of Claims 1 and 5 Under 35 U.S.C. §103(a)

Claims 1 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over McMaster II in view of Kubo.

The Examiner has found that McMaster II teaches all of the elements of the claimed subject matter except a lower mold support assembly to which the lower mold is transferred from the mold shuttle. The Examiner has specifically found that McMaster II teaches the glass sheet heating furnace, an upper mold support, a lower mold shuttle and alignment means for the upper mold relative to the lower mold, referencing McMaster II, column 3, lines 32, 54, and 61 and column 4, line 15. (Examiner's Answer, page 3, lines 4-8). We agree that McMaster discloses all of the elements of claim 1 as recited by the Examiner, with the exception of the lower mold support assembly to which the lower mold is cyclically transferred from the lower mold shuttle in the use position.

The Examiner has further found that Kubo teaches a vulcanizing mold setting apparatus including a mold carriage for supporting the mold mount and transferring it to the lower heating plate and a pair of mold supports each with two clamping members for a total of four clamping members. Kubo is also said to teach a centering mechanism for centering the mold on the lower heating plate (citing Kubo, column 3, lines 46-68). Kubo is further found to teach at column 7, line 35 that the mold carriages may be unmanned automatic mold carriages, thus inherently including a programming means which could induce cyclical movement (Examiner's Answer, page 3, lines 8-14).

The Examiner thus concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the mold carriage and mold supports of Kubo for the shuttle of McMaster so that once the shuttle delivers the mold to the forming area, it is free to move out of the way of the operation, thus increasing the life of the shuttle or leaving it free to perform other tasks. The Examiner also has concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to cyclically control the movement of the carriage and thus the mold, to produce a consistent process with consistent glass sheet production. (Examiner's Answer, page 3, line 18 - page 4, line 4).

Initially, the Appellants challenge the use of the Kubo reference. It is, they contend, non-analogous art. (Appeal Brief, page 5, lines 8-12).

Prior art is relevant to the obviousness inquiry only if it is analogous, i.e., if it is drawn from that inventor's field of endeavor or if it is "reasonably pertinent to the particular problem with which the inventor is involved." In re Paulsen, 30 F.3d 1475, 1481, 31 USPQ2d 1671, 1676 (Fed. Cir. 1994). "A reference is reasonably pertinent if,

even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992).

The Examiner has stated that "[t]here is nothing in the claims on appeal, as recited, that limit the mold of the instant invention to glass sheets." (Examiner's Answer, page 5, lines 9-10). The Appellants specifically point to the preamble of claim 1 and the last two lines, both of which reference a heated glass sheet. (Reply Brief, page 1, line 1 - page 2, line 9). The preamble of a claim may or may not be limiting, depending on the language of the claim. Furthermore, the referencing of a glass sheet, as opposed to its actually being claimed, renders the claim broader. In the present instance, the glass sheet itself is not claimed.

Furthermore, we note that considering the particular problem facing the inventors, this reference would have logically commended itself to their attention. As stated in the specification, the invention relates to an "apparatus and method for forming heated glass sheets while providing alignment between lower and upper molds used in the forming." (Specification, page 1, lines 4-7). Further, "[f]or effective high yield glass forming, it is important for cooperable molds to be properly positioned upon mounting and aligned with each other during each cycle of operation therebetween, which is made more difficult due to the heated environment in which the glass sheet forming takes place." (Specification, page 2, lines 6-11). Thus, we find the particular problem which was confronted by the inventors to have been the alignment of mold portions in a heated environment, for the forming of glass sheets.

Kubo is directed to the use of a mold transfer mechanism for use in a tire vulcanization machine, which is capable of automatically setting and aligning a tire vulcanizing mold on a vulcanizing machine (Column 1, lines 6-11). Given the similarities involved in each process and their overall configuration, i.e. the heated spaces to cause an effect on a workpiece, the individual mold portions, the automated process, and the alignment, we additionally find that Kubo is reasonably pertinent to the particular problem with which the inventor is involved, and, therefore, analogous art.

The Appellants further urge that even if this combination were to be made, it would not result in the claimed invention.

First, it is stated by the Appellants that McMaster II moves the upper mold support to provide horizontal alignment and there is no movement of the lower mold support to provide alignment with the upper mold. (Appeal Brief, page 5, lines 4-7). We disagree with both the Appellants' claim interpretation, and their assessment of the prior art.

As regards the Appellants' claim, we note that nothing in the instant claims excludes alignment of both the upper and lower mold portions. Furthermore, the presently claimed lower mold support assembly provides support while "permitting horizontal alignment of the lower mold with the upper mold." In other words, the lower mold support could hold still and yet permit alignment.

Turning now to the cited art, McMaster II clearly states that the "upper mold support 26 and lower mold shuttle 20 are accurately registerable together via the registration means 22, 30 when the upper mold support is moved relatively toward the lower mold shuttle" (Col. 4, lines 1-4) and "the upper mold support 26 and lower mold

shuttle [are] accurately aligned by the registration means.” (Col. 4, lines 13-15). The lower mold is capable of movement to be aligned with the upper mold in McMaster II.

The Appellants further argue that Kubo fails to teach the support of a lower mold for horizontal movement for alignment with an upper mold during cyclical operation of the apparatus, relying on the setting of the upper and lower molds together on the platen of a tire vulcanization apparatus at the beginning of a production cycle. (Appeal Brief, page 5, lines 13-18). In response, the Examiner notes that it is the support assembly of Kubo which is being added to the McMaster II apparatus. (Examiner’s Answer, page 5, lines 14-15).

We agree with the Examiner. Kubo’s support assembly, not the mold assembly, is being added to the McMaster II apparatus. Motivation for this substitution is clearly found in the Kubo discussion of automating the first step of placing the mold into the vulcanization machine, to save on time and work, thereby reducing costs. (Kubo, column 2, lines 2-12).

Finally, the Appellants argue that this combination fails to provide a lower mold shuttle and a lower mold support assembly between which a lower mold is cyclically transferred to permit horizontal alignment of the lower mold with the upper mold as necessary. This is said to be so because McMaster II involves movement of the upper mold and Kubo initially aligns both the upper and lower mold portions. (Appeal Brief, page 5, line 20 - page 6, line 7). We disagree.

As noted above, McMaster II allows alignment of both the upper and lower mold halves during the downward stroke of the apparatus. See, especially, the discussion at McMaster II, column 4, lines 1-6, and lines 50-58. Further Kubo’s mold type is not at

issue or in question. We observe that Kubo teaches that the mold carriage is loaded with a mold supporting plate. The plate when positioned in front of the vulcanizing machine is moved by a mold moving mechanism into the tire vulcanizing machine, where it is centered. (Kubo, col. 5, lines 24 - 60). Kubo discloses alignment of the overall mold within the vulcanization machine and the automated insertion of the support plate from a shuttle. Kubo is not relied upon for a particular mold type.

We therefore are unpersuaded by these arguments, and agree with the Examiner's conclusion that McMaster II and Kubo rendered the claimed invention obvious to one of ordinary skill in the art at the time the invention was made.

The Rejections of Claims 13 and 16 and Claim 15 Under 35 U.S.C. §103(a)

The Appellants have not directed any separate arguments to these rejections, merely stating that this rejection is "deficient for the same reasons discussed above in connection with the proposed combination of [McMaster II and Kubo]" and reiterating the same argument. Accordingly, we summarily affirm this rejection for the reasons discussed above in addressing the rejection over McMaster II in view of Kubo.

Summary of Decision

The rejection of claims 1 and 5 under 35 U.S.C. §103(a) over McMaster II in view of Kubo is sustained.

The rejection of claims 13 and 16 under 35 U.S.C. §103(a) over McMaster II and Kubo as applied to claim 1 above, further in view of McMaster I, is sustained.

The rejection of claim 15 under 35 U.S.C. §103(a) as being unpatentable over McMaster in view of Kubo as applied to claim 13 above, and further in view of Austin, is sustained.

Time Period for Response

No time period for taking any subsequent action in connection with this appeal
may be extended under 37 C.F.R. 1.136(a).

AFFIRMED

TERRY J. OWENS
Administrative Patent Judge

ROMULO H. DELMENDO
Administrative Patent Judge

JAMES T. MOORE
Administrative Patent Judge

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